

DECLARATION

My name is Brian Sagar PhD, BSc, MRSC of The Cottage, 42 Moseley Road, Cheadle Hulme, Cheadle, Cheshire, SK8 5HJ, UK and I am the sole inventor of the invention set out in US Patent Application Serial No. 09/889,282 (hereafter Sagar '282). I am a Non-Executive Director of Reflec plc of Road One, Winsford Industrial Estate, Winsford, Cheshire, CW7 3QQ, to whom I have assigned the entire right, title and interest in the patent application.

My career as a research chemist started in 1953, culminating as Director of Research at the British Textile Technology Group. I semi-retired in February 1993. I have been working in the field of retroreflective materials since May 1993, at which time I was approached by the founder of a newly formed company, Reflective Technology Industries (RTI) Ltd., to act as a consultant. I subsequently became a founder member of the Board of this company in the role of Technical Director. RTI Ltd. subsequently became Reflec plc. I have been involved in the development of a wide range of retroreflective products during the past 12 years.

Reflec plc market a range of retroreflective inks according to the invention claimed in Sagar '282. These products have been marketed by Reflec plc, RTI Ltd. and Reflec USA Inc. in at least 28 countries, including the USA. These retroreflective inks have been a great commercial success and the average annual turnover is in excess of \$350,000 per annum. However, the majority of our business relates to the sale of fabric and apparel printed with such retroreflective inks, which generate an average annual turnover in excess of \$3,500,000.

I attribute the commercial success of these retroreflective ink products as being due to their long shelf life; these one-pack products can be stored and then used in a screen-printing process over an extended period of time. Prior to the launch of our product, the only successful competing product was sold as three separate packs, a first pack containing a binder dispersion composition, a second pack containing a coupling agent and a third pack containing hemispherically-coated glass microspheres or beads. These three components were mixed immediately prior to use and were then able to be used in the screen-printing process for a period of approximately six hours. After this time period any remaining ink that had not been used in the process had to be discarded. Accordingly, at the time the invention claimed in Sagar '282 was made, there was a long felt want for a stable retroreflective ink product which could be stored and used in a screen-printing process over a sustained period of time. The products we market according to the invention can be stored and then used for a period of up to 1 year. This is a significant improvement over the retroreflective inks that were then available.

I have examined the teaching in US5,650,213 (Rizika et al) and the retroreflective ink described in this document would not have an extended shelf life, because the coupling agents (adhesion promoters, fixers) suggested are reactive at ambient temperatures. This patent does not teach the concept of reflective inks with a long shelf life, coupled with excellent



curing at elevated temperatures in order to achieve good durability to laundering. These advantages are uniquely achieved by the teaching of Sagar '282 by incorporating a coupling agent selected from the group consisting of aminoalkyl silanetriol and a blocked polyisocyanate. Both types of coupling agents are completely unreactive at ambient temperatures, ensuring prolonged shelf life. But at elevated temperatures they become reactive and cross-link the binder chemicals and covalently bond the retroreflective beads to the binder and to the substrate, thereby ensuring good durability to laundering.

I have examined the teaching in JP2-43275 (Shunichi) and this document does not relate to retroreflective ink products and teaches inks with a basically different composition (i.e. solvent based) to the aqueous type used in retroreflective ink products that are suitable for screen-printing textile substrates. Accordingly, it is my belief that this document would not be considered by a person skilled in the art when looking at the problem of making retroreflective inks more stable (i.e. exhibiting a prolonged shelf life), whilst at the same time providing a means of ensuring the retroreflective beads are firmly bound into the binder matrix and onto the textile substrate on curing at an elevated temperature, in order to achieve satisfactory washfastness.

I have examined the Examiner's arguments in the Office action mailed on 06/21/2005 and in my opinion it would not be obvious to a person skilled in the art to have employed the microspheres disclosed in Rizika in the ink composition of JP '275. This is firstly because the JP '275 would not be considered relevant to the problem as indicated above. This is secondly because the resulting ink product would not be suitable for use as a retroreflective ink for screen-printing onto a textile substrate because of the organic solvent nature of the volatile constituent, the inherent risk of blocking of the rotary and flat-bed screens used for printing and environmental factors.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Brian Sagar

Date